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Common interfaces eClinicalWorks implements for clients:

- Hospital Labs
- Reference Labs
- Diagnostic Imaging results
- Hospital system interface for departmental reports, discharge summaries
- Immunizations Registries
- Health Departments
- Quality and measure reporting

The goals for almost all of the implementations are as follows:

a) Import relevant information into the ambulatory EHR or export information from the ambulatory EHR, supporting a workflow suitable for a practice to use at the point of care. (Technical interoperability)

   The challenge here is that each project is treated as a new project. Specifications are exchanged, test scenarios are re-created, standards are discussed and each nuance of using a customer data format is defined. The process is time-consuming due the various interoperability standards and in most cases the non-standardization of terminology and vocabulary. The cost, both in terms of physicians dollars and opportunity cost, are high and hence need to be addressed

b) Exchange or import data such that it can be meaningfully analyzed by software programs to support better Clinical Decision Making. (Semantic interoperability)

   Many systems don't support the data export and import formats that are either consistent or codified to have meaningful and semantic interoperability. Interpretation of the data is still visual and in most cases, not consistent between the disparate sources to facilitate 100% accuracy for automated clinical decision making.

Vocabulary Standards:

The concern is not the lack of standards when it comes to structured vocabulary – we have many -LOINC, CPT, ICD, SNOMED, NDC etc.; it's the lack of clinically relevant vocabulary abstraction and most commonly used nomenclature that makes it hard and often impossible to develop semantic interoperability.

Example: A1C from different labs can have different LOINC codes based on the methods used to perform the test. Although it's relevant in some analyses to have the specific LOINC nomenclature, for most HER based decision support tools it increases the probably of omissions and misinterpretations.

Similarly SNOMED is a comprehensive vocabulary, too comprehensive for some uses. **Example** a) for Blood Pressure readings there is Systolic BP concept with a Diastolic BP concept and then there is the Blood Pressure concept. **Example** b) There is a SNOMED concept for Leg Edema, Foot Edema and Edema of lower extremities.

What we need is a **most commonly used** and **physician- friendly list**. If we can develop a recommendation list of the most common SNOMED concepts and encourage EHR vendors to use the recommended list, the results will be meaningful interoperability and the tools developed to support clinical decisions, patient recalls, and treatment protocols based on results v/s human interventions.

Cost:

We need to make it easier to re-use and deploy interfaces in Hub-Spoke model v/s individual point-to-point interfaces. Point-to-point interfaces require additional man hours and make the interface deployment costly.

Example: Hospitals labs support a Hub and Spoke model for deploying their lab results to their community practices. Once tested for an individual practice we can re- deploy the interface for all the community practices using the same interface without the need for re-testing or practice validation.
On the other hand for a similar lab interface for reference labs we have to individually deploy, test and validate the interface, resulting in additional man hours; thereby increasing the overall cost for the interface.

We should re-look at the CLIA rules that mandate reference labs to re-test every practice result. By removing this process, we can deploy more practices with an electronic lab interface at the time of the practices GO_LIVE of the EHR system.

Governance for interoperability:

In community projects where we have been successful and implemented ambulatory practice to practice sharing of patient records, hospital system interoperability there has been a strong community governance model and value proposition in place for the small provider practice. Without a broader governance model, often the value proposition for the small provider practice is limited to labs and hospital discharge summaries.

Measure Reporting and Interoperability:

There are different standards for quality measure across the country. NCQA, PQRI, BCBSMA, BCBS RI, BTE etc. Its time consuming developing reports for each Quality program. Developing a standardize set of Measure reports will help reduce the time and costs. Resulting in better and consistent training and deployments of Quality oriented EHRs across the country.